AMENDMENTS TO THE SPECIFICATION

** Please renumber original Figure 4A as "Figure 4A-1" as set forth in the new set of Formal Drawings submitted herewith.

** Please add new Figure 4A-2 as set forth in the new set of Formal Drawings submitted herewith.

** Please substitute the following replacement paragraph **[0029]** for the previous version thereof at page 11 of the specification:

> **[0029]** FIG. 4A-1, FIG. 4A-2 and FIG. 4B through 4F are schematic views of variously configured flow-distribution schemes for a four-channel parallel flow reactor.

** Please substitute the following replacement paragraph **[0070]** for the previous version thereof at page 26 of the specification:

> **[0070]** Referring further to Figure 7A, the external fluid distribution system 480 – and additionally or alternatively – the internal inlet distribution subsystem 500 can further comprise a feed-composition control system (not shown in Figure 7A). The feed-composition control system can be of any suitable design. In a preferred embodiment, however, the feed-composition control system can be provided as discussed above. Reference is made to Figures 4A-1, 4A-2 and 4B through 4E, together with 5A through 5C, for example, as discussed below.

** Please substitute the following replacement paragraph **[0071]** for the previous version thereof at pages 26-27 of the specification:

> **[0071]** One embodiment for achieving a varied feed composition simultaneously in or through four or more mixing zones is exemplified by Figure 4A-1 and Figure 4A-2. A feed control subsystem 525 (included as part of the external fluid distribution system 480 or as part of an internal fluid distribution system 500) can comprise a set of four or more

feed-component flow resistors that comprises a first subset 531 (a, b, c, d, considered collectively) and a second subset 533 (a, b, c, d, considered collectively) of feed-component flow restrictors corresponding to a first feed component and a second feed component, respectively. Specifically, a first feed component is provided from a first-feed-component source 530 to each of four mixing zones 540 through a first subset 531 comprising four first-feed-component flow restrictors 531a, 531b, 531c and 531d. A second feed component is provided from a second-feed-component source 532 to each of the four mixing zones 540 through a second subset 533 of second-feed-component flow restrictors 533a, 533b, 533c and 533d. The flow resistance of each of the first-feed-component flow restrictors 531a, 531b, 531c and 531d varies relative to each other. The flow resistance of each of the second-feed-component flow restrictors 533a, 533b, 533c and 533d can be substantially the same as each other, or can vary relative to each other. As shown in Figure 4A-1 and in Figure 4A-2, for example, the relative flow resistances for the first feed-component flow restrictors 531a, 531b, 531c and 531d and the second feed-component flow restrictors 533a, 533b, 533c and 533d are selected to vary across each set, and further, are selected such that the total sum of the flow resistances for the group of flow restrictors associated with a particular mixing zone (*e.g.* a first group comprising feed-component flow restrictors 531a and 533a; a second group comprising feed-component flow restrictors 531b and 533b, *etc.*) are substantially the same, such that substantially the same flow rate can be achieved through each of the four mixing zones 540. As shown in Figure 4A-1, the ~~The~~ feed-component flow resistances are illustrated as being included in the flow distribution system as a microfluidic chip 3000. As shown in Figure 4A-2, the feed-component flow resistances are illustrated as being flow restrictors in the form of capillaries 531a, 531b, 531c, 531d, 533a, 533b, 533c and 533d.

** Please substitute the following replacement paragraph **[0097]** for the previous version thereof at page 41 of the specification:

[0097] With reference to Figures 5A through 5C, a variable feed-composition subsystem of the fluid distribution system 500 can comprise at least one set or subset of four or more feed-component flow restrictors, as described above in connection with Figures 4A-1 and 4A-2 (for Fig.'s 5A and 5B) and in connection with Figure 4E (for Figure 5C). First and

preferably also second feed components can be provided to each of the four or more mixing zones 540 such that four or more feed compositions (each varying relative to each other) are formed. The resulting four or more varying feed compositions are then fed from the four or more mixing zones 540 to the four or more reactors 600 (such that each of the four or more mixing zones, or a further space in fluid communication therewith, is functional as an "external" reactant source for, and is in fluid communication with, at least one of the four or more reactors). In one embodiment (*e.g.* Figure 5B), each of the four or more mixing zones 540 can be a dedicated mixing zone in fluid communication with only one of the four or more reactors 600. In other embodiments (*e.g.* Fig. 5A, Fig. 5C), each of the four or more mixing zones 540 can be in fluid communication with a plurality of the four or more reactors 600, or alternatively, with each of the four or more reactors.

** Please substitute the following replacement paragraph **[0123]** for the previous version thereof at page 57 of the specification:

[0123] A particularly preferred embodiment of such an integrated chemical processing system 10 is shown, in greater detail, in Figure 7C. With reference thereto, the chemical processing system 10 comprises four 9-channel (3x3) arrays 100 of reactors 600, together with four inlet distribution subsystems 500. Reactant feed streams are provided to each of the four inlet distribution subsystems 500 from a corresponding set of four dedicated active flow control elements 483 (*e.g.,* MFC's). As shown, the external fluid distribution system 480 comprises gas and liquid reagent (or treatment agent) supply systems 481, 482, hot dash pot 484 and appropriate vents, drains, and connecting piping or conduits suitable for fluid communication between indicated components. The external fluid distribution system 480 – and additionally or alternatively – the internal inlet distribution subsystem 500 can further comprise a feed-composition control system (not shown in Figure 7C), including for example feed-composition control systems as described above in connection with Figures 4A-1, 4A-2 and 4B through 4E, and especially Figure 4E.